

# A New species of Phenopelopidae (Acari, Oribatida) from South Japan

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**Abstract** *Eupelops kumaensis sp. n.* was collected from Kumamoto Pref., southern Japan. The new species has triarched anterior tectum of notogaster, two pairs of adanal setae, two Trägårdh's organs and tibia of leg IV without solenidion.

**Key words:** *Eupelops*, New species, Oribatida, South Japan

After sixty-four species and six subspecies were informed as members of the genus *Eupelops* by Subías (2004), two species are added to the genus: *E. miyamaensis* Fujikawa, 2003 [2004] and a new species, *E. kumaensis* sp. n. described in the present paper.

## *Eupelops kumaensis* sp. n.

[Japanese name: Kuma-emmadani]  
(Figs. 1 - 3)

**Material examined:** Holotype (Female) (NSMT-Ac 13026) from litter, humus and soil material in the garden under no-tillage manner of Nagasato (32° 12' 5 N; 130° 54' 5 E; about 195 m a.s.l.) in Asagiri-cho, Kuma-gun, Kumamoto Prefecture, June-22-2007, T. Fujikawa; 4 paratypes (NSMT-Ac 13027 to 13030, females): the same data as holotype, but May-15-2008 & June-20-2008. The type series is deposited in the National Museum of Nature and Science, Tokyo.

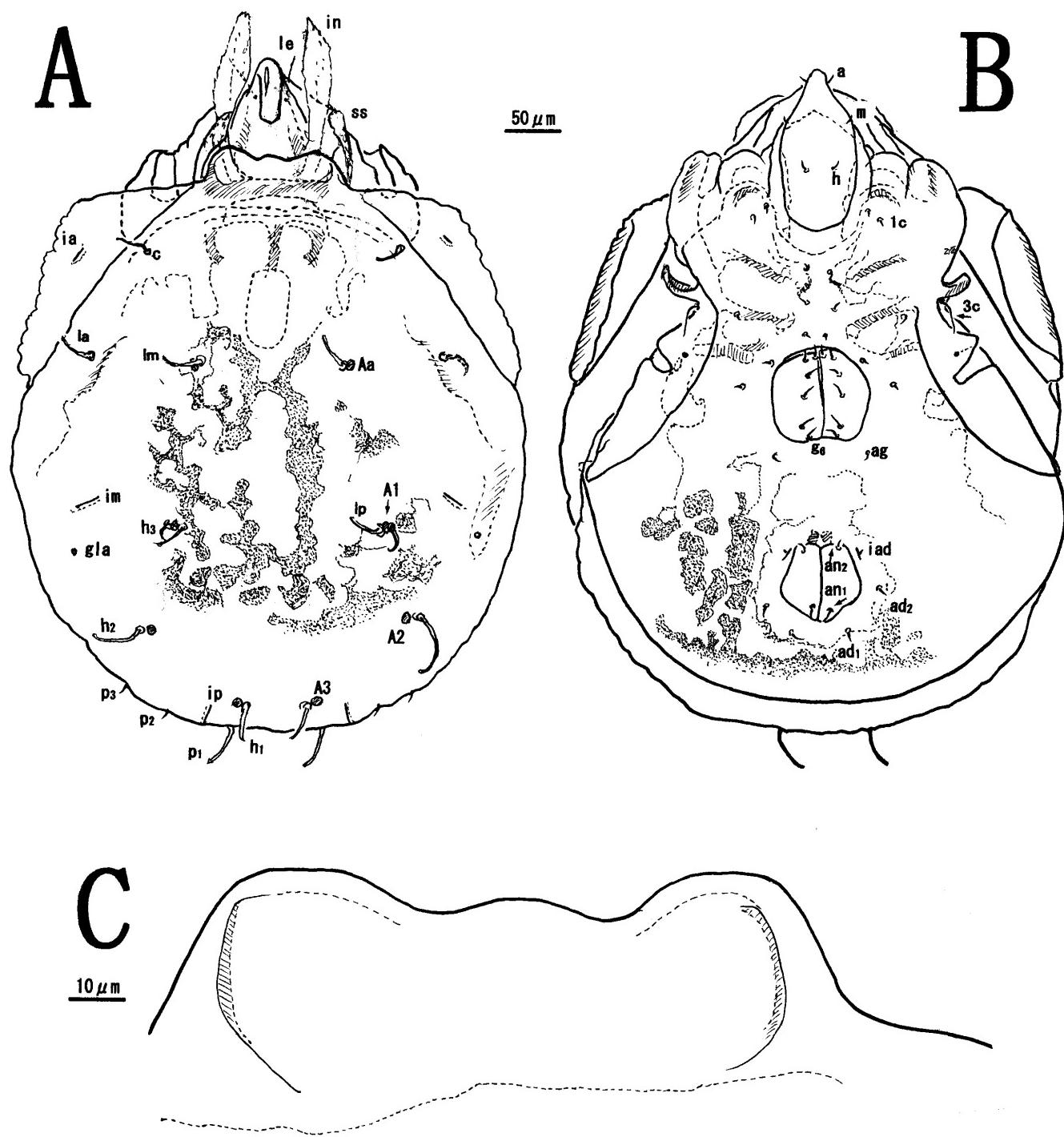
**Etymology:** After the local name of sampling area, Kuma.

**Measurements and body appearance:** Female (n = 39), male not found: Body length, 457 (504) 557 µm; width: 350 (388) 443 µm. Body color of specimens on slides dark reddish brown, but live mites with body color of deep purple. The whole integument bearing dark granules; granules gathering, forming irregular, broken network.

**Prodorsum:** Rostrum protruding with rounded tip (Fig. 1A). Rostral setae (*ro*) thick with mid-portion slightly expanded and distal half conspicuously barbed, inserted on lateral margins at the base of the free tip of tutorium, extending for half length

of seta beyond rostral anterior margin (Fig. 2C). Tutorium sharply pointed at tip, extending for a short distance beyond anterior margin of rostrum, without dents. Lamellar cuspidis extending to almost mid-distance between rostral anterior margin and base of cuspidis. Interspace between cuspidis forming U-shape. Lamellar setae (*le*) barbed throughout the length, arising from antero-ventrally on cuspidis (Fig. 2A). Interlamellar setae (*in*) large, phylliform, roughened throughout the length, extending beyond rostrum for a distance equal to about one-third of their length. Bothridia opening anterolaterally. Sensilli consisting of conspicuously barbed club-shaped head and sparsely barbed thin long stem, extending to the level of base of cuspidis. Exobothridial setae (*ex*) short and smooth. Relative lengths of prodorsal setae: *in*  $\approx$  2  $\times$  *ro*, *ss*  $\approx$  1.4  $\times$  *ro*, *le*  $\approx$  0.7  $\times$  *ro*, *ex*  $\approx$  0.2  $\times$  *ro*.

**Notogaster:** Movable pteromorphae developed; chitinous bridge projecting further anteriorly than anterior margin of pteromorphae covering basal part of prodorsum, forming an triarched bridge with low middle arch (Fig. 1C). Elliptical lenticulus visible. Ten pairs of notogastral setae bacilliform, roughened throughout the length variable in length (Fig. 3A); the longest *p*<sub>1</sub>, the shortest *p*<sub>2</sub>. Four pairs of area porosae small, round; Aa contiguous to *lm*, A1 between *lp* and *h*<sub>3</sub>, A2 and A3 near to *h*<sub>2</sub> and *h*<sub>1</sub>, respectively. Lyrifissures *ia* located parallel to suture between pteromorpha and body on middle portion of pteromorpha at the level of seta *c*; *im* aligned obliquely anterolaterally to setae *h*<sub>3</sub>; *ip* longitudinally lateral to *h*<sub>1</sub>. Opisthosomal gland-opening situated posterior to *im* and posterolaterally to *h*<sub>3</sub>. Relative distances between notogastral setae in central part of notogaster: (*h*<sub>2</sub> - *h*<sub>1</sub>)  $>$  (*c* - *c*)  $>$  (*lp* - *lp*)



**Fig. 1.** *Eupelops kumaensis* sp. n. (Paratype NSMT-Ac 13030, ♀). A, Dorsal view; B, Ventral view; C, Anterior tectum of notogaster of a depressed specimen.

le, in: lamellar and interlamellar setae, respectively; ss: sensillus; c, la, lm, lp, h<sub>1-3</sub>, p<sub>1-3</sub>: dorsal setae; gla: latero-opisthosomatic gland; ia, im, ip, iad: lyrifissures; g<sub>6</sub>, ag, an<sub>1-2</sub>, ad<sub>1-2</sub>: genital, aggenital, anal and adanal setae, respectively; a, m, h: anterior, medial and posterior subcapitular setae, respectively; 1c: epimeral seta;

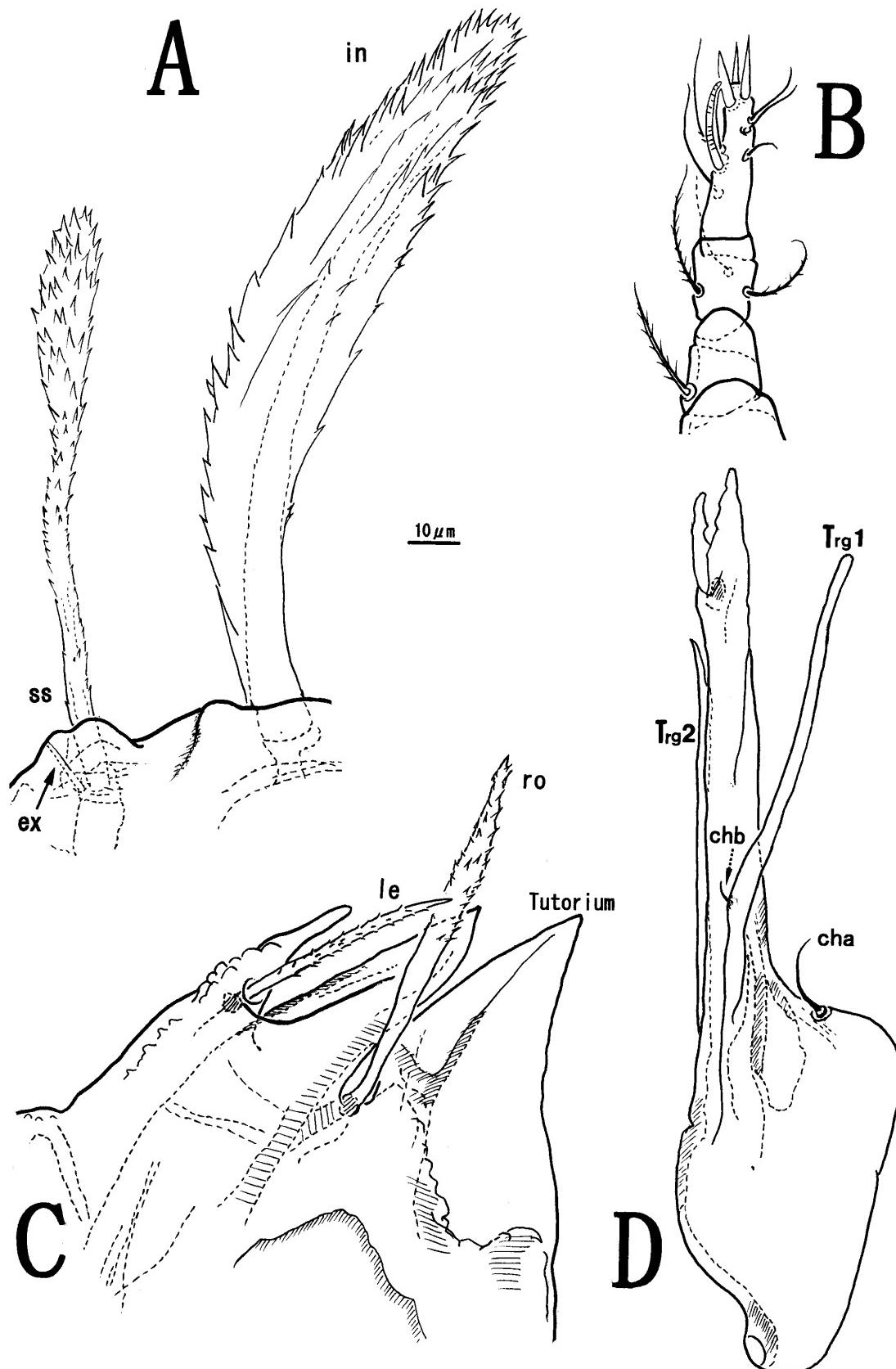
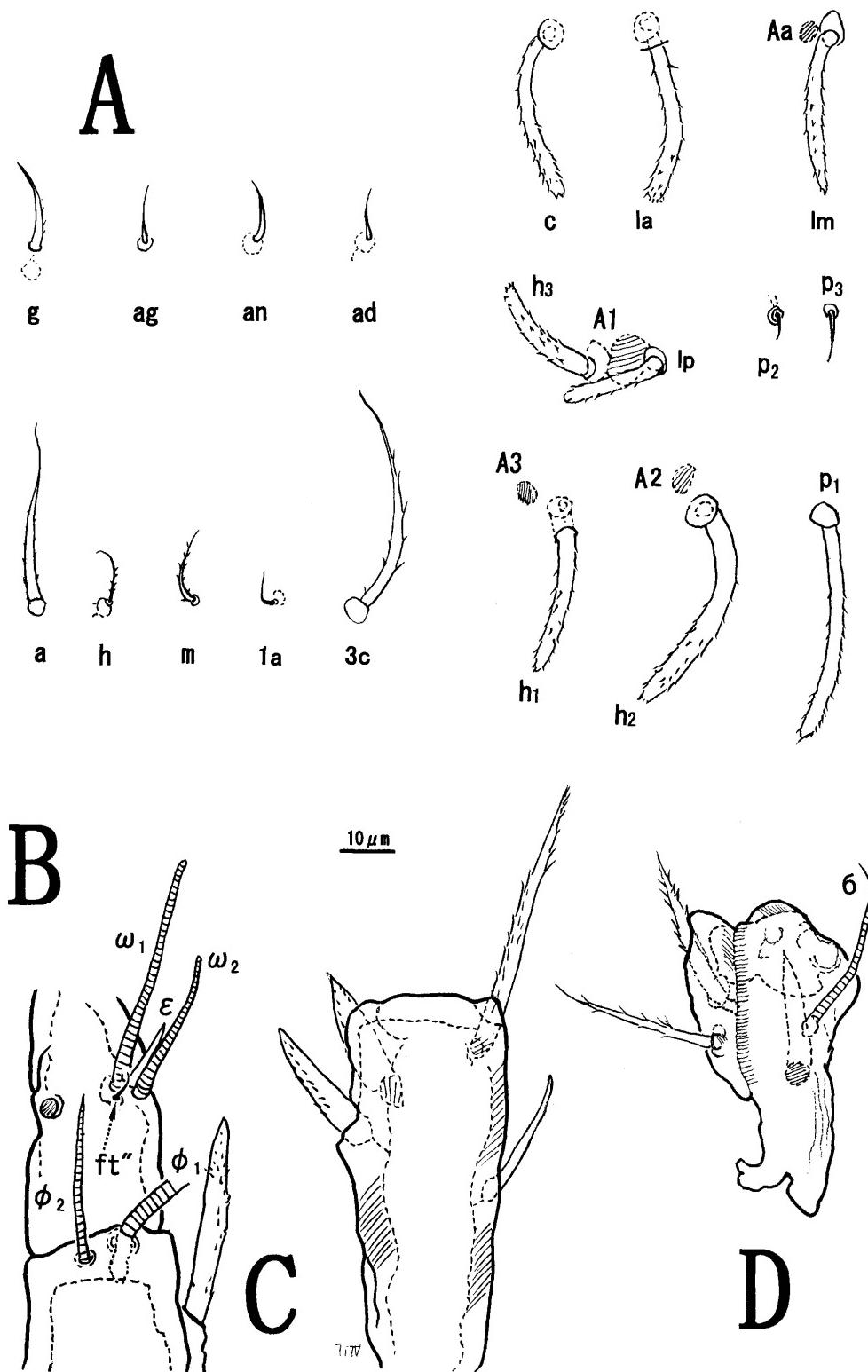


Fig. 2. *Eupelops kumaensis* sp. n. (Paratype NSMT-Ac 13027 ♀).

A, Left bothridial region; B, Pedipalp; C, Rostral region in lateral aspect; D, Chelicerae.

*ro*, *ex*, *le*, *in*: rostral, exobothridial, lamellar and interlamellar setae, respectively; *ss*: sensillus; *cha*: posterior seta of chelicerae; *chb*: anterior seta of chelicerae; *Trg*: Trägårdh's organ.

**Fig. 3.** *Eupelops kumaensis* sp. n.

A, Some of body setae; B, Solenidial region of tarsus and tibia of right leg I; C, Left tibia IV; D, Right genu I.

*c*, *la*, *lm*, *lp*, *h<sub>1-3</sub>*, *p<sub>1-3</sub>*: dorsal setae; *g*, *ag*, *an*, *ad*: genital, aggenital, anal and adanal setae, respectively; *a*, *m*, *h*: anterior, medial and posterior subcapitular setae, respectively; *1a*, *3c*: epimeral setae; *Aa*, *A1*, *A2*, *A3*: areae porosae;

$\epsilon$ : famulus on tarsus of leg I;  $\omega_{1-2}$ : solenidia on tarsus of leg I;  $\psi_1$ ,  $\psi_2$ : solenidion on tibia of leg I;  $\phi$ : solenidion on genu of leg I; *ft"*: fastigial seta of leg I.

$> (lm - lp) > (lm - lm) > (h_1 - h_2) > (c - lm) > (h_2 - h_3)$ .

**Ventral region:** Genital and anal apertures almost pentagonal in form; the latter about three-fourth as long as the former; interspace between them appreciably longer than genital aperture (Fig. 1B). Genito-anal setae: 6 – 1 – 2 – 2; genital setae sparsely barbed; other setae smooth. Genital setae  $g_1$  and  $g_2$  inserted on anterior inner margin of each plate; other setae,  $g_3$  to  $g_6$  inserted longitudinally near the mid-ventral line. Setae  $ag$  inserted lateroposteriorly to the genital aperture. Anal setae  $an_1$  and  $an_2$  inserted near anterior and posterior margin of plate, respectively. Adanal setae lacking in  $ad_3$ . Setae  $ad_1$  postanal,  $ad_2$  postero-laterally to anal aperture. Lyrifissures  $iad$  aligned at the paraanal position, near anterior margin of anal aperture. Sternal ridge indistinct. Apodemata distinct. Epimeral setal formula: 3 – 1 – 3 – 3; setae minutely sparsely barbed, variable in length; the longest  $3c$ , the shortest  $1a$ . Suctorial subcapitulum bearing 3 pairs of setae; setae sparsely minutely barbed. Chelicerae bearing two Trägårdh's organs; Trg I thicker and longer than Trg 2. Two setae,  $cha$  and  $chb$  smooth;  $cha$  long,  $chb$  short (Fig. 2D). Pedipalpal chaetotaxy: 0 – 2 – 1 – 3 – 9; tarsus with a short solenidion not extending forwards beyond tip of tarsus (Fig. 2B).

**Legs:** All tarsi heterotridactylous; claws serrate. Setal formula of legs including famulus but excluding solenidia: I (1 – 5 – 3 – 4 – 20), II (1 – 5 – 3 – 4 – 16), III (2 – 3 – 1 – 3 – 14), IV (1 – 2 – 2 – 4 – 12). Genua of leg I bearing carina (Fig. 3D). Solenidiotaxy; I (1-2-2), II (1-1-2), III (1-1-0), IV (0-0-0). No solenidion on tibia IV (Fig. 3C). On tarsus I, famulus spiniform situated between  $\omega_1$  and  $\omega_2$ ; solenidion  $\omega_1$  and  $\omega_2$  short bacilliform;  $\omega_1$  longer than  $\omega_2$ ; fastigial seta  $ft'$  very short, inserted posteriorly contiguous to  $\omega_1$  (Fig. 3B).

**Remarks:** The new species differs from other congeners in having triarched tectum on anterior margin of notogaster, congregation of granules forming insular ornament on notogastral surface, two pairs of addanal setae, two Trägårdh's organs and tibiae IV of legs without solenidion. *Eupelops acromios* (Herman, 1804) is similar to the new species in having two Trägårdh's organs (Grandjean, 1936). The species has also triarched tectum of notogastral anterior margin and tibiae IV without solenidium like the new species. However, *E. acromios* is distinguishable from the new species by 3 pairs of addanal setae, long solenidion of pedipalpal tarsus, notogastral setae  $lp$  inserted far from  $h_3$ , lower and wider median arch of notogastral tectum and long thick notogastral setae. The new species also resembles to *E. contaminatus* Choi, 1986 and *E. spongiosus* Mahunka, 1998 in two pairs of adanal setae, shape

of notogastral anterior tectum and insertion of notogastral setae  $lp$  and  $h_3$ . However, the former differs from the latter two in shape of ornament formed by granules on notogaster. The new species is similar to *E. subexutus* (Berlese, 1916) sensu Bernini (1973) and *E. mongolicus* Bayartogtokh et Aoki, 1999 in tri-arched tectum of notogastral anterior margin and tibiae IV without solenidion. However, the former differs from the latter two in number of adanal setae, situation of lyrifissure  $ia$ , and insertion of aggenital setae. Furthermore, the new species is distinguishable from *E. subexutus* by insertion of notogastral setae  $lp$ , and length of notogastral setae  $p$ -series, and from *E. mongolicus* by the presence or the absence of Trägårdh's organs, length of two setae on chelicerae, length of solenidion on pedipalpal tarsus, and situation of areae porosae Aa and A1.

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### 摘要

藤川徳子（〒868-0423 熊本県球磨郡あさぎり町 1346番地の3）：エンマダニ属の一新種。

クマエンマダニ（新称）*Eupelops kumaensis* sp. n. を熊本県あさぎり町から採集し記載した。翼状突起をつなぐ後体部前縁の突出部が三つ山型であること、肛側毛が2対のみであること、鋸角に2本の長いTrägårdh's organsをもつこと、そして第IV脚の脛節には感覚毛が存在しないことにより、他の同属種と区別できる。

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